



NOAA Technical Memorandum NMFS-SEFC-8

ANNOTATED BIBLIOGRAPHY AND SUBJECT INDICES FOR WESTERN ATLANTIC SNAPPERS (LUTJANIDAE)

Joseph E. Tashiro

October 1979

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
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National Oceanic and Atmospheric Administration

Richard A. Frank, Administrator

National Marine Fisheries Service

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Annotated Bibliography and Subject Indices for Western Atlantic
Snappers (Lutjanidae)

ABSTRACT

This annotated bibliography contains references to literature published from 1896 to 1977 pertaining to fishes of the family Lutjanidae and the snapper fisheries. Seventeen common species in the genera Apsilus, Etelis, Lutjanus, Ocyurus, Pristipomoides, and Rhomboplites are covered. The geographic area concerned is the Gulf of Mexico, Caribbean Sea and other areas of the western Atlantic Ocean from 35° N lat to 8° S lat. Subject indices of snapper fisheries and biology, and snapper species are included.

INTRODUCTION

The commercial snapper fishery of the United States began over a century ago. Fishing started off the South Atlantic and Gulf Coast states and expanded to more distant waters off Mexico, the Bahamas and the western Caribbean Sea. Snappers (Table 1) are found in tropical and warm temperate regions in shallow estuaries of less than 1 fathom (1.83m) to oceanic waters over 140 fathoms (256m) in depth; because of their wide distribution, availability, and value as food fish, this multi-species resource is vulnerable to pressure from many user-groups (Allen and Tashiro 1976). In addition to commercial exploitation, snappers are fished by almost a million recreational fishermen in the U.S. (Deuel 1973). Moreover, other countries bordering the Gulf of Mexico, the Caribbean Sea, and off the north and northeast coast of South America have snapper fisheries; these range from artisanal endeavors conducted from shore or nearshore using canoes and small boats to large-scale commercial operations.

In the literature I found no bibliography on snappers, their biology, and fisheries; therefore, I assembled these references for use by the fishing industry, research organizations, fishery scientists, management groups, and other interested parties. This paper contains a list of references concerning snappers of the western Atlantic Ocean from Cape Hatteras, North Carolina (35°N lat) to Recife, Brazil (8°S lat).¹ To make this list more meaningful to the user, a brief annotation follows each reference. Only a few comprehensive snapper research papers were found; most reports deal with a narrow aspect of the biology, fishery, resource or research of snappers, and many merely mention or list snappers among fish identified. These references are compiled mainly from recognized published fishery and scientific literature of an established series and monographs. Generally excluded are popular periodicals, encyclopedias, dictionaries and fishery statistical publications. Anonymous articles are listed by the name of the journal, agency, state or country. Abbreviations for journals are as, or compatible with, the system

¹ Some snapper life history and ciguatera references concerning other areas are included.

Table 1. Snappers commonly occurring in the Western Atlantic Ocean.

<u>Scientific Name</u> ¹	<u>Common Name</u>
<u>Apsilus dentatus</u>	Black snapper
<u>Etelis oculatus</u>	Queen snapper
<u>Lutjanus analis</u>	Mutton snapper
<u>Lutjanus apodus</u>	Schoolmaster
<u>Lutjanus buccanella</u>	Blackfin snapper
<u>Lutjanus campechanus</u>	Red snapper, Gulf red snapper ²
<u>Lutjanus cyanopterus</u>	Cubera snapper
<u>Lutjanus griseus</u>	Gray snapper
<u>Lutjanus jocu</u>	Dog snapper
<u>Lutjanus mahogoni</u>	Mahogany snapper
<u>Lutjanus purpureus</u> ²	Caribbean red snapper ²
<u>Lutjanus synagris</u>	Lane snapper
<u>Lutjanus vivanus</u>	Silk snapper
<u>Ocyurus chrysurus</u>	Yellowtail snapper
<u>Pristipomoides aquilonaris</u>	Wenchman
<u>Pristipomoides macrophthalmus</u> ³	Voraz ³
<u>Rhomboplites aurorubens</u>	Vermilion snapper

¹ Except when noted otherwise, scientific and common names follow the American Fisheries Society Special Publication No. 6 (Bailey et al., 1970).

² From Rivas (1966).

³ From Anderson (1967).

used in "Biosis 1973 List of Serials"², when possible.

Subject indices are presented in tabular form where a range of topics or species can be scanned and cross-referenced with the associated authors.

The uncertainty concerning general snapper (Lutjanidae) taxonomy, and the definition of the term "red snapper" deserve some comment. The taxonomy of snappers in the 19th century involved the basic task of discovering, identifying and cataloguing of species to recognizable units. Not until the works of Jordan and Swain (1885), Jordan and Fesler (1893), and Jordan and Evermann (1896-1900) was the status of the family Lutjanidae brought to workable order. Because of this confusion in identity and taxonomy, I arbitrarily used Jordan and Evermann's "The Fishes of North and Middle America" and the year of its publication 1896 (Part 1), as the starting point for most taxonomic references in this bibliography.³

The red snappers are usually the target fishes of the U.S. commercial snapper fishery. Rivas (1966) in his "Review of the Lutjanus campechanus Complex of Red Snappers" determined there to be three distinct species of red snappers: L. campechanus (gulf red snapper), L. purpureus (Caribbean red snapper) and L. vivanus (silk snapper). L. vivanus posed no identity problems to taxonomists, the confusion was in the other two species. Before his paper was published, L. campechanus and L. purpureus were often reported in the literature as L. aya or L. blackfordi. Rivas showed that the name aya did not apply to a species of Lutjanus, and that L. blackfordi was a junior synonym of L. campechanus.

Lutjanus campechanus and L. purpureus are continental shelf species. Generally, L. campechanus is found only in the Gulf of Mexico and off the Atlantic coast of the United States, and L. purpureus only in the Caribbean Sea along the coasts of Central and South America to Brazil. Rivas attributed this allopatry to barriers formed by the absence of a continental shelf and deep water between the Caribbean Sea and the Gulf of Mexico. Lutjanus vivanus is a more widely distributed species found on the continental shelves and shelf edges and also off oceanic islands and banks throughout most of the geographic range of this paper. (S'alnikov 1965, Gonzales-Alberdi 1975, Roe 1976).

In earlier years, the term "red snapper" referring especially to Lutjanus campechanus developed the connotation of a product of excellence and fine quality, but later the term became ambiguous and is now often used generically by the commercial and recreational fishing industry as well as in the literature. Fishermen can readily recognize different snapper species but

2 Biosciences Information Services of Biological Abstracts, 2100 Arch Street, Philadelphia, PA 10103.

3 Literature cited in the text and some snapper fishery references of historical interest may pre-date 1896.

may not separate them; at least ten species are named or marketed under the general category of red snapper (Camber 1955, Carpenter 1965).

I thank William D. Anderson Jr. of the College of Charleston, and Churchill Grimes of Rutgers University for their comments and use of their personal files.

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SUBJECT INDICES

The subject indices contain general topics concerning the snapper fisheries, biology; and snapper species. Since many references are not exclusively concerned with snapper, these indices do not necessarily review the complete paper, but only the subject matter pertinent to snappers.

The Index of Fisheries and Biology lists 22 general topics. The Index' of Snapper Species lists 17 of the more common species by scientific name. The references are identified on the left-hand column by author and date; the topics or species are listed on the top of each page and coded by letter. Topics or species contained in-the references are indicated by the code letters opposite the authors.

Index of Snapper Fisheries and Biology

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
		Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential	Statistics, Catch, Effort	Taxonomy, Morphology					
Clark 1960																												
Claro & Lapin 1974																												
Claro et al. 1974																												
Coelho & Pavia Filho 1974																												
Colin 1974																												
Collette & Rutzler 1977																												
Collette & Talbot 1972																												
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Collins 1887a																												
Collins 1887b																												
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Duffy 1971																												
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Ellis 1957																												
Elvers & Johnston 1976																												
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Evermann & Bean 1898																												
Evermann & Marsh 1902																												
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Fadul 1968																												
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Fiedler & Jarvis 1932		A																										
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Holder 1913																												
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Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
		<u>A. dentatus</u>	<u>E. oculatus</u>	<u>L. analis</u>	<u>L. apodus</u>	<u>L. buccanella</u>	<u>L. campechanus</u>	<u>L. cyanopterus</u>	<u>L. griseus</u>	<u>L. jocu</u>	<u>L. mahogoni</u>	<u>L. purpureus</u>	<u>L. synagris</u>	<u>L. vivanus</u>	<u>O. chrysaurus</u>	<u>P. aquilonaris</u>	<u>P. macrophthalmus</u>	<u>R. aurorubens</u>
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Alvarez Peres 1969																		
Anderson 1966																		
Anderson 1967	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
Anderson 1972		B													O	P	Q	
Anderson & Gehringer 1965						F		H							N			
Austin 1971					D			H	I									
Austin & Austin 1971					D			H	I									
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Baird 1973	B				E							M	M					
Bardach 1958						F		H										
Barrosa 1965							F											
Bastos et al. 1975	C				E	F			I		K	M						
Baughman 1943						F		H	I		L							
Bearden & McKenzie 1971						E	F											
Beaumariage 1964						F		H						N				
Beaumariage 1969	C					F		H				L		N				
Beaumariage & Bullock 1976						F		H										
Beaumariage & Wittich 1966	C			E		F		H				L		N				
Beebe & Tee-Van 1928	C	D		E		F		H	I		L		N					
Beebe & Tee-Van 1933	B	D	E					H			L	M	N					
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Briggs 1958	B	C	D	E	F	G	H	I	J	L	M	N		O				
Bright & Pequegnat 1974						F	H											
Bright & Rezak 1976						F	H											
Brody 1972						E		H				M						
Brody & Slocum 1974									I									
Brownell 1970	A	B			E							M	N		P	Q		
Brownell 1971	A	B	C	E				I		K	M		P		P			
Brownell & Rainey 1971	A	B	C	E				I			M		P		P			
Buesa 1975			C			F					L	N						
Bullis 1964						F					L	M	O					
Bullis & Struhaker 1970						F					L	M						
Bullis & Thompson 1959						F					L	M						
Bullis & Thompson 1965	A	C	D	E		G	H		J	L	M	N		P	Q			
Bullis & Thompson 1970						F					M							

⁵ References to L. aya and L. blackfordi in the Gulf of Mexico and the U. S. Atlantic coast are listed here as L. campechanus; L. aya in the Caribbean Sea and off South America is listed as L. purpureus.

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Z	
		<i>A. dentatus</i>	<i>E. oculatus</i>	<i>L. analis</i>	<i>L. apodus</i>	<i>L. buccanella</i>	<i>L. campechanus</i>	<i>L. cyanopterus</i>	<i>L. griseus</i>	<i>L. jocu</i>	<i>L. mahogoni</i>	<i>L. purpureus</i>	<i>L. synagris</i>	<i>L. vivanus</i>	<i>O. chrysurus</i>	<i>P. aquilonaris</i>	<i>P. macrophthalmus</i>	<i>R. aurorubens</i>	<i>S. caribaeus</i>	<i>T. maculatus</i>	<i>U. maculatus</i>	<i>V. maculatus</i>	<i>W. maculatus</i>	<i>X. maculatus</i>	<i>Y. maculatus</i>	<i>Z. maculatus</i>	
Caldwell 1966	A	B	C	D	E	F	G	H	I	J																	
Camber 1955a		B	C		E	F		H																			
Camber 1955b						F																					
Captiva & Rivers 1960			C	D	F			H																			
Carles Martin & Liubimova 1967			C	D	E	F	G	H																			
Carpenter 1965	B	C	D	E	F		H																				
Carpenter & Nelson 1969				E																							
Carpenter & Nelson 1971	C	D	E	F		G	H	I	J	K	L	M	N	O													
Carranza 1962	C	E	F	G	H																						
Carrillo et al. 1974			F																								
Carson 1944	C	D	F				H																				
Carvalho 1943			F				H																				
Castillo & Carles 1966	C	D	E	F	G	H	I	J																			
Causey 1969			F	G	H																						
Cervigon 1963																											
Cervigon 1966	C	D	E	F		H	I	J																			
Chaplin & Scott 1972	C	D	F			H	I	J																			
Chestnut & Davies 1975	C	F																									
Chittenden & McEachran 1976	C	F																									
Chittenden & Moore 1976		F																									
Claro & Lapin 1974																											
Claro et al. 1974	C					G	H																				
Coelho & Pavia Filho 1974			E						I				K														
Colin 1974	C																										
Collette & Rutzler 1977					F																						
Collette & Talbot 1972																											
Collins 1887a	C	D	E				H																				
Craig 1966	C	E				H																					
Craig 1976						H																					
Croker 1960						H																					
Croker 1962																											
Cummins & Jones 1973	C	D	F	H	H																						
Cummins et al. 1962a	C	D	F	H	H																						
Cummins et al. 1962b																											
Dahlberg 1975	C	D	E	F	G	H	I	J																			
Dammann 1965		D	E	F	G																						
Dammann et al. 1970	A	B		E																							
Dawson 1963					F																						
Dawson 1966					F		H																				
Diener 1975				F																							
Douglas & Stroud 1971																											
Druzhinin 1970	C	D	E	F	G	H	I	J																			
Duffy 1975																											
Ellis 1957			D		G	H	I																				
Erdman 1956		E		E	G	H																					
Erdman 1974	A	B	C	D	E	G	H	I	J																		
Erdman 1976	A	B	C	D	E	G	H	I	J																		
Evermann & Bean 1898	B	C	D	F	G	H	I	J																			
Evermann & Marsh 1902																											

Author(s)	Code:	A. <u>dentatus</u>	B. <u>E. oculatus</u>	C. <u>L. analis</u>	D. <u>L. apodus</u>	E. <u>L. buccanella</u>	F. <u>L. cappechanus</u>	G. <u>L. cyanopterus</u>	H. <u>L. griseus</u>	I. <u>L. jocu</u>	J. <u>L. macropomus</u>	K. <u>L. purpureus</u>	L. <u>L. synagris</u>	M. <u>L. vivanus</u>	N. <u>O. chrysurus</u>	P. <u>P. aquilonaris</u>	Q. <u>P. macrophthalmus</u>	R. <u>R. aurorubens</u>
Fable & Saloman 1974									H									
Fadul 1968																		
Fahay 1975																		Q
Fiedler & Jarvis 1932																		
Fiedler et al. 1947		B	C	D	E	F		H	I	J		L	M	N				
Fishery Market News 1942									H	I								Q
Fonteles-Filho 1970																		
Fonteles-Filho 1972																		
Fonteles-Filho & Kurisaka 1970																		
Fourmanoir 1968																		
Fowler 1953			C	D		F		H		J		L	M	N				
Furtado-Ogawa & Menezes 1972																		
Futch & Torpey 1966								F										
Futch & Bruger 1976								F										
Gesteira & Ivo 1973																		
Gesteira et al. 1972																		
Gilbert 1973																		
Gines 1975					D	F	H											
Gines & Cervigon 1968																O	P	Q
Ginsburg 1930								F										
Gomez de la Maza 1966																		
Gonzalez Alberdi 1975	A	B		D	E	F												
Goode 1884																		
Goode & Gill 1903																		
Griffiths & Simpson 1972			C			F		H										
Grimes 1976a			(D)		E	F												
Grimes 1976b																		
Grimes 1977																		
Grimes et al. 1977						E	F	G										
Gudger 1929									H									
Gusey & Maturgo 1975										F								
Haskell 1961										F								
Hastings et al. 1976											H							
Heald 1970		A								H								
Hildebrand 1954			C							H								
Hildebrand 1955										H								
Hildebrand et al. 1964				D						H	I							
Hildebrand & Ginsburg 1927			C			F				H								
Hobson 1974													M					
Hoese 1958			C	D	F					H								
Holder 1913			C	D	F					H	I							
Houde 1971										F								
Howell Rivero 1938										F							P	Q
Huntsman 1973												J						
Huntsman 1976a					E	F												
Huntsman 1976b						F												
Huntsman & Macintyre 1971						F												
Hutton et al. 1961											H							
Idyll 1971							E											
Idyll & Randall 1959																		
Irby 1974								F			H							
Iversen & Berry 1969								F			H							
Ivo & Gesteira 1974																		
Ivo 1973a																K		
Ivo 1973b																K		
Ivo 1975																K		
Izquierdo 1976																L		

Author(s)	Code:	A. <u>dentatus</u>	B. <u>oculatus</u>	C. <u>L. analis</u>	D. <u>L. apodus</u>	E. <u>L. buccanella</u>	F. <u>L. campechanus</u>	G. <u>L. cyanopterus</u>	H. <u>L. Briseus</u>	I. <u>L. jocu</u>	J. <u>L. matogoni</u>	K. <u>L. purpureus</u>	L. <u>L. synagris</u>	M. <u>L. vivianus</u>	N. <u>O. chrysurus</u>	O. <u>P. aquilonaris</u>	P. <u>P. macrophthalmus</u>	Q. <u>R. aurorubens</u>
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Jarvis 1932				C	D								L	M	N			
Jarvis 1935						E	F		H									
Johnston et al. 1930										I	J		L	M	N			
Jordan & Evermann 1896-1900	A	B	C	D	E	F	G	H	I	J								Q
Jordan & Evermann 1902	A	C	D	E	F	G	H	I	J									Q
Jordan & Fesier 1893	A	B	C	E	F	G	H	I	J									Q
Jordan & Swain 1885	B	C	D	E	F	G	H	I	J									Q
Jordan & Thompson 1905		C	D	E	F	G	H	I	J									Q
Jordan et al. 1930	B	C	D	E	F	G	H	I	J								P	Q
Juhl 1969	C		E						H	I			L	M	N			Q
Juhl 1972	C		E					G	H	I			L	M	N			Q
Juhl & Suarez-Caabro 1971	C		E						H	I			L	M	N			Q
Juhl & Suarez-Caabro 1973	C		E										L	M	N			Q
Kapote 1971						F												
Kawaguchi 1974	A	B	C	D	E			H	I	J	K	L	M	N		P	Q	
Kinch & O'hara 1975							H											
Klima 1976a						F												
Klima 1976b		C				F		H				L		N				Q
Klima 1976c							F	H				L		N				Q
Korzhova 1969		C					G	H				L		N				
La Monte 1958		C	D					H		J	K			N		P		
Lima 1965					F													
Longley & Hildebrand 1941	C	D			F					I		L	M	N		P	Q	
Lonnberg 1894					F							L		N				
Love & Thompson 1969												L		N				
Martinez 1948	C				F			H	I			L		N				
Mather 1952	C	D			F		G	H	I			L		N				
McClane 1965	C	D	E		F		G	H	I			L	M	N				
Meek & Hildebrand 1925	C	D	E	F	G	H	I	J				L		N				
Mezentseva 1975	C	D	E	F	G	H	I	J				L		N				
Miranda Ribeiro 1961	C	D	E	F														
Moe 1963								H				L	M	N				
Moe 1966a							F	H				L		N				
Moe 1966b								H				L		N				
Moe 1972									H					N				
Moe et al. 1970					F													
Moe et al. 1966					F			H				L		N	O		Q	
Monteiro de Almeida 1965					F													
Moore 1973					F													
Moore 1975								H										
Morales 1967																		
Moseley 1965								F										
Moseley 1966a								F										
Moseley 1966b								F										
Mota Alves 1971a												K						
Mota Alves 1971b												K						
Munro 1973									H				M	N		P	Q	

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
		<u>A. dentatus</u>	<u>E. oculatus</u>	<u>L. analis</u>	<u>L. apodus</u>	<u>L. campechanus</u>	<u>L. buccanella</u>	<u>L. cyanopterus</u>	<u>L. eriseus</u>	<u>L. jocu</u>	<u>L. mahogoni</u>	<u>L. purpureus</u>	<u>L. synagris</u>	<u>L. vivanus</u>	<u>O. chrysurus</u>	<u>P. aquilonaris</u>	<u>P. macrophthalmus</u>	<u>R. aurorubens</u>
Saenz 1963																		
Saez 1974																		
Sal'nikov 1965		C	D	E	F	G	H	H	I			K	M	N				
Santos & Coelho 1974																		
Sauskan 1975																		
Sauskan & Olaechea 1974		C			F	G	H	H	I			L						
Sauskan & Ryzhov 1975												L						
Schroeder 1921		C	D		F		H	H	I			L						
Schwartz 1972					F		H	H	I			K	M	N				
Sec. Ind. y Comer. 1976		C		E	F		H	H	I			L	M	N	O			
Sekavec & Huntsman 1972												M						
Siebenaler 1953								H				L						
Smith & Tyler 1973		C																
Smith 1975						F		H										
Smith 1976a					F		H	H										
Smith 1976b		C	D	E	F	G	H	H		J	L	M	N	O		Q		
Smith et al. 1975						G	H				L							
Smith 1895					F		H											
Smith 1896		C			F		H				L							
Sokolova 1965		C		D	F		H				L							
Solis Ramirez 1966											M							
Sonnier et al. 1976						F	G	H	I		L	M	N		P	Q		
Springer & Bullis 1956		B	C		E	F	H	H	I		L	M	N					
Springer & Woodburn 1960						F		H			L							
Starck 1961											M							
Starck & Davis 1966					D	E	F	G	H	I	J	L	M	N				
Starck & Schroeder 1970					D	E	F	G	H	I	J	L	M	N				
Stearns 1887c						F												
Struhsaker 1969		C		E	F		H				L	M	N	O		Q		
Suarez-Cabro 1970a		C			F		H				L	M	N					
Sutherland 1977						F		H										
Swingle & Bland 1974						E						M	N					
Swingle & Dammann 1969																		
Swingle et al. 1970										I								
Sylvester 1974					D	E		G	I	J						P		
Sylvester et al. 1977																		
Sylvester & Dammann 1973																		
Sylvester & Dammann 1974		A	B	C	E				I		K		M		P	Q		
Tabb & Manning 1961								H										
Tabb et al. 1962								H										
Tashiro & Coleman 1977					C		F	H				L	M	N		Q		
Thompson & Thompson 1972												M	N					
Thompson & Munro 1974					A	B	C	D	E	H	I	J	L	M	N	P	Q	
Topp 1964										H								
Turner & Johnson 1973										H								

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Ulrich & Rhodes 1977						E	F	G						M			Q	
Vasconcelos 1947					D									N			Q	
Vick 1964						F			H									
Walford 1946							F											
Walford & Wicklund 1973				C						I								
Walker 1950																		
Wallace 1977														N				
Wang & Raney 1971								H					L					
Wolf & Chislett 1974											K		M					
Wolf & Rathjen 1974									H				M					
Wilcox 1902			C									L	M					
Zaneveld 1962		A		C	D	E	F						M	N				